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THE UNIVERSITY OF ALBERTA

THE RELATIONSHIP OF PERSONALITY TRAITS AND SELECTED SOCIAL FACTORS TO ALCOHOL CONSUMPTION AT THE NORTHERN ALBERTA INSTITUTE OF TECHNOLOGY

BY

© ROBERT KEITH BUCHAN

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS

DEPARTMENT OF PHYSICAL EDUCATION
EDMONTON, ALBERTA
SPRING, 1976

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled RELATIONSHIP OF PERSONALITY TRAITS AND SELECTED SOCIAL FACTORS TO ALCOHOL CONSUMPTION AT THE NORTHERN ALBERTA INSTITUTE OF TECHNOLOGY submitted by Robert Keith Buchan in partial fulfilment of the requirements for the degree of Master of Arts.

H. J. McCullin
Supervisor

David P. Reid

E. E. Fox

Date December 9 1975

DEDICATION

I would like to dedicate this manuscript to my wife, Robyn, who through her patience and assistance, made it possible to continue the thesis through to completion.

ABSTRACT

The purpose of the study was to examine the relationship between personality traits and the level of alcohol consumption.

The sample included 338 students from the Northern Alberta Institute of Technology in Edmonton, who were stratified according to their enrollment in fifty different technological programs. During the testing period, the students responded to four instruments: the Taylor-Johnson Temperament Analysis, the Quantity Frequency Alcohol Index, the Iowa Scale of Preoccupation with Alcohol and the Student Questionnaire.

It was hypothesized that the high consumers of alcohol among Northern Alberta Institute of Technology students would have significantly higher levels of the hostile, dominant, expressive-responsive, active-social, and impulsive Taylor Johnson Temperament Analysis traits than medium and low consumers of alcohol.

An analysis of results revealed that high consumers of alcohol had significantly higher levels of hostility and impulsiveness in their personalitites than medium and low consumers of alcohol. High users were not found to be different in terms of dominance, expressive-responsiveness, nervousness, depression, sympathy, subjectiveness and active-sociability.

A further descriptive profile of high users, as determined by questionnaire, would depict them as more likely to be male, come from rural backgrounds, have mothers who are high consumers of alcohol, perceive excessive amounts of alcohol as not harmful to the body, have a French ethnic background and to have commenced using alcohol between the ages of thirteen and fourteen.

The use of the Iowa Preoccupation with Alcohol Scale revealed that high users are more preoccupied with alcohol than low and medium consumers.

The study was limited to the Northern Alberta Institute of Technology student body and therefore the findings should not be generalized to any other populations.

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CHAPTER I

INTRODUCTION

> The large role that the production and consumption of alcoholic beverages plays in the economic and social life in western society should not permit us to minimize the fact that alcoholism is a more significant problem than all other forms of drug abuse combined. (p. 248)

The above situation stated by Jaffe (1970), is not a recent social phenomenon, but has a long history dating back to the initial cultivation of cereal crops. Thus, it is associated with Man's early agricultural development.

Archaeological sites have provided evidence that crops have been used not just for food, but also in preparation of fermented brews. Indeed, wine and other alcoholic beverages are featured in the social and religious lives of both prominent and everyday citizens of all subsequent civilizations.

The problem has been of sufficient magnitude that, from time to time, governments have made serious attempts to prohibit the production and consumption of alcoholic beverages. The most well known of these efforts was the 1931 Act of Prohibition in the United States. This experiment merely led to the implementation of other less desirable social practices, such as smuggling, and "bootlegging" operations, as well as contributing to the development of organized crime. Prohibition of alcohol did not reduce "society's thirst," but merely resulted in extra energy being used to obtain alcohol by some other means. This may have prompted Kessel and Walton (1967) to state that:

> In our own society, however, and throughout the Western world, the traditional euphoriant has always been alcohol in one of its many preparations. (p. 7)

In fact, up until the 1960's, in the western world, alcohol was the main psychoactive substance used by society. However, Blum (1969) realized that during the latter part of the 1960's there was a rapid expansion of illicit drugs. This trend is further explained by Blum:

> Most researchers pointed to a period up to 1963 where the students interested in these psychoactive substances were mostly graduate students. Since then the statistics and clinical observations have implicated increasingly younger student groups. (p. 3)

This changing pattern reported by Blum, together with parental concern led to a flurry of studies in North America with the majority of these related to the nonalcoholic psychotropic drugs. LeDain et al., (1973) supports the above pattern:

> However alcohol has been frequently omitted from past consideration since many researchers have not ordinarily associated it with the drug culture. (p. 670)

In Canada, these studies culminated in the final report of the Commission of Inquiry into the Nonmedical Uses of Drugs, directed by Gerald LeDain and completed in 1973. This report, which studies the impact of alcoholic and nonalcoholic drugs in Canadian society, states that alcohol consumption is increasing rapidly and is presently the greatest drug problem in our society because of its widespread usage and social acceptability.

Gilbert (1974) supports the above views and emphasized them in an address to the Edmonton Public School Board Trustees. He stated that:

> The problem of alcoholism is currently the third most frequent cause of death in this province and a major cause of social and familial disruption. (p. 2)

STUDENT ALCOHOL USE

Hughes (1971, p. 10) suggests that the youth of the 1960's were increasingly seeking the use of nonalcoholic drugs to relax and get their "kicks," whereas their parents had sought the same sensations from alcohol. Naturally, the reaction by the adults was to condemn these contemporary drug patterns of their children.

Tibbert (1974), reflects this changing mood of the student in the seventies when he states:

> The accent seems to be on booze--a drug that falls comfortably on the side of tradition, the old school tie of intoxicants. (p. 70)

Tibbert (1974) goes on to suggest that the change in the nature of drug consumption among students as well as their lower social profile is related to the fact that,

> The counter-culture flower children of the sixties have dropped from view and now are but a distant memory. (p. 50)

Time (Sept. 23, 1974) attributes this trend partly to the fact that:

> The job orientated attitude of the student has contributed to the comeback of oncampus beer and liquor, since many students fear that a drug arrest might ruin their chances for a successful career. (p. 59)

Commenting further, Time (Sept. 23, 1974, p. 59) claimed that this changing pattern of drug use was also associated with the disappearance of the old political activism and revolutionary spirit of the sixties.

These are studies that support the changing drug pattern that Tibbert, Time magazine and LeDain et al., mention. One such report by Smart et al., (1973, p. 67) cites that between 1968 and 1972 there had been a 30 percent increase in the number of Toronto students in grades seven to thirteen who had used alcohol once in the last six months.

At the community college level, LeDain et al., (1973, p. 688) report that in 1972, studies in North America revealed that 80 percent to 97 percent of univeristy students consumed alcohol. Hughes (1971, p. 96) reported in his marihuana study that 91 percent of the students at the Northern Alberta Institute of Technology (hereafter designated N.A.I.T.), had consumed alcoholic beverages.

Therefore it appears from the foregoing that student alcohol usage is at a high level in tertiary education institutions and has risen sharply, over the last few years, among high school students.

The extent of the student alcohol consumption at N.A.I.T. will be explored in this study. The obtained data will be compared to Hughes' results on 1971, to determine the changes, if any, in alcohol consumption trends at this Institute.

THE PROBLEM

The main purpose of this study was to measure the relationships between the level of alcohol consumption reported by students at N.A.I.T. and personality traits. A sub-problem was to examine various demographic, social, and personal characteristics of the students in relation to the level of alcohol consumption.

IMPORTANCE

Information from this study will assist the N.A.I.T. Counselling Department by revealing the extent and pattern of alcohol usage. This will allow the Department to prepare programs to meet problem areas that the study may reveal.

The Taylor Johnson Temperament Analysis, (hereafter designated as T.J.T.A.) is used extensively by the N.A.I.T. Counselling staff. If certain temperament traits are now linked to high consumption of alcohol, then, this instrument may be used by the counsellors to help diagnose a potential problem drinker in the student population.

Another motive for this study was that very few drug studies in Canada or the United States have been conducted in institutes of technology. Compared to universities, institutes of technology populations may be more indicative of the general population because more of the students come from families of low socio-economic backgrounds. Puffer (1971), in commenting on the N.A.I.T. student population, tends to support this view:

> The majority of students attending N.A.I.T come from families having lower socio-economic status based on father's occupation, father's education and father's income. (p 131)

THE SAMPLE

The sample consisted of 338 students who were randomly selected from a total population of 3,700 full-time students in attendance at N.A.I.T.

STATEMENT OF HYPOTHESES

1. High users of alcohol will have significantly higher levels of hostility in their personalities than medium and low users of alcohol.

2. High users of alcohol will have significantly higher levels of dominance in their personalities than medium and low users of alcohol.

3. High users of alcohol will have significantly higher levels of the expressive-responsive component in their personalities than medium and low users of alcohol.

4. High users of alcohol will have significantly higher levels of the active-social component in their personalities than medium and low users of alcohol.

5. High users of alcohol will have significantly higher levels of impulsiveness in their personalities than medium and low users of alcohol.

6. There will be no significant relationship between high, medium and low users of alcohol and the level of nervousness in their personalities.

7. There will be no significant relationship between high, medium, and low users of alcohol and the level of depression in their personalities.

8. There will be no significant relationship between high, medium, and low users of alcohol and the level of sympathy in their personalities.

9. There will be no significant relationship between high, medium and low users of alcohol and the level of subjectiveness in their personalities.

10. There will be a significant relationship between those students classified as being high consumers of alcohol and those classified as being preoccupied with alcohol.

11. Students classified by the cumulative frequency scale will exhibit differences on social correlates such as age, religion, ethnic background, size of hometown, and the questionnaire test items such as school grades, age they started drinking, vocational interests, family usage of alcohol, and level of knowledge about alcohol.

DEFINITION OF TERMS

Personality Traits

Taylor and Morrison (1968, pp. 4-6) have defined the personality traits that can be correlated with alcohol consumption. They define these as follows:

Nervous - tense, high-strung, apprehensive.

Depressive - pessimistic, discouraged, dejected.

Active-Social - energetic, enthusiastic, socially involved.

Expressive-Responsive - spontaneous, affectionate, demonstrative.

Sympathetic - kind, understanding, compassionate.

Subjective - emotional, illogical, self-absorbed.

Dominant - confident, assertive, competitive.

Hostile - critical, argumentative, punitive.

Impulsive - uncontrolled, disorganized, changeable.

Levels of Alcohol Consumption

For the purpose of this study, the various levels of alcohol consumption were defined by a Quantity Frequency Index. They are as follows:

Low Consumer

This type of person consumed alcohol not more than once a month and at that particular drinking session, consumed not more than seven glasses of beer, or five bottles of beer, or four drinks of "hard" liquor, or five glasses of wine.

Medium Consumer

This type of person was one whose drinking habits were represented by either of the following Quantity Frequency patterns. The first being a person who consumed alcohol two to four times a month and at a typical drinking session consumed not more than seven glasses of beer or five bottles of beer, or five glasses of wine, or four drinks of "hard" liquor. The second type of medium consumer was a person who consumed alcohol more than once a week, and at a typical drinking session consumed not more than three glasses of beer, or two bottles of beer, or three glasses of wine, or two drinks of "hard" liquor.

High Consumer

This type of person consumed alcohol more than once a week and at a typical drinking session consumed eight or more glasses of beer, or five or more bottles of beer, or six or more glasses of wine, or five or more drinks of "hard" liquor.

LIST OF ABBREVIATIONS

T.J.T.A. - Taylor Johnson Temperament Analysis

M.M.P.I. - Minnesota Multiphasic Inventory

E.P.P.S. - Edward's Personality Preference Scale

N.A.I.T. - Northern Alberta Institute of Technology

CHAPTER II

REVIEW OF RELATED LITERATURE

HIGH ALCOHOL CONSUMPTION AND ALCOHOLISM

It should be clearly understood that the writer is not equating excessive alcohol consumption with alcoholism. However, it is noted that deLint (1974), reports that, "excessive consumption is very closely related to other alcohol related problems." (p. 6)

He elaborates this point by stating that high consumers suffer damage to health, exhibit loss of control on occasions and experience family problems, all of which could be identified as being alcoholic by definition. Continuing, deLint (1974, p. 6) cites studies by deLint (1974), deLint and Schmidt (1974) and Mendelson (1970), which reveal that populations with a high alcohol consumption have a high rate of alcoholism.

Mulford and Miller (1960) are in agreement with the deLint studies. In their study on the Iowa population, it was shown that individuals who registered as being preoccupied with alcohol, that is, having alcoholic characteristics, were generally high consumers of alcohol. (p. 279)

THEORETICAL EXPLANATION OF ALCOHOL CONSUMPTION

There are many motives for alcohol consumption. These include social, cultural, biological and psychological factors (Trice, 1966 p. 5). Why can some people cope with alcohol, while others succumb? Trice suggests:

> The best explanation is personality. Drinking affects emotional behaviour. It can serve as a depressant for some individuals and a stimulant for others, depending on the personality makeup of the individual. (p. 6)

Kessel and Walton (1967) support Trice's viewpoint. They claim that, "Certain people appear to be predisposed to alcoholism by prior impairment of their personality." (p. 74)

The different schools of psychology have developed various ways to explain the "impairment of personality." One of the more common explanations is that characterized by the psychoanalytic approach. The psychoanalytic theory revolves around the growing adolescent passing from youth to maturity and experiencing many new behaviour patterns. If the emotional development is imperfect at any stage, then the personality may not reach its mature form and (to use psychoanalytic terms) becomes "fixated" at an earlier stage of development (Kessel and Walton, 1967, p. 75). Fixation at the oral level resulting from the failure of the personality to progress to maturity, may result in high alcohol consumption.

Gestalt psychological concepts have been employed to

explain high alcohol consumption. According to Perls et al., (1951) "The greatest value in the Gestalt approach lies in the insight that the whole determines the parts." (p. xi) The whole of the individual (which includes both the physical and mental processes) assimilates both physical food and mental concepts. However, Perls et al., (1951, pp. 190-191) claim that whatever is assimilated is not taken in as a whole, but is subjected to a process of introjection, which only takes what the individual needs for total development.

Applying the above concept to the alcoholic, the same authors (1951) say, "He is a bottle baby, a gulper, reluctant to take solid food and chew it." (p. 194) As this type of person develops through life, Perls et al., (1951) state:

> He wants to drink his environment in--to get easy and total confluence without excitement, (which to him is a painful effort of destroying and assimilating). (pp. 193-194)

In addition, Perls et al., (1951, p. 194) claim that socially the alcoholic will "pour out his heart" on the first contact with an individual because he is able to, with the aid of alcohol, bypass those parts of his personality that would exercise discrimination. He solves his problems by simply "drinking them down" as alcohol numbs his senses and thus does not disturb his "status quo."

The Transactional Analysis Theory developed by Berne has also been used to explain why people become preoccupied with alcohol. The building blocks of this theory (Parent, Child,

Adult) appear to resemble the basic psychoanalytic concepts. Berne (1961) states, "The Parent, Adult and Child are not concepts like Superego, Ego and Id, but phenomenological realities." (p. 24) The Parent is the huge collection of unquestioned or imposed external events preceived by an infant. Harris (1973) explains, "Everything the child saw his parents do and everything he heard them say, is recorded in the Parent." (p. 40)

The child is the recording of the internal events, that is, the responses of the little person to what he sees and hears. Because of the helplessness of the individual at this stage, he soon develops negative feelings which Harris (1973) describes as the "I am not okay, Life Position." (p. 48) As the infant begins to manipulate his environment, he starts to self-actualize and simultaneously begins to develop his Adult. Harris (1973), claims that he is now in a position to: "begin to find out what is different in life from the 'taught concept' of life in his Parent, and the 'felt concept' of life in his Child." (p. 51)

The Transactional approach encourages an individual to change a detrimental life script. Unlike the Alcoholics Anonymous "incurable philosophy," Transactional Analysis allows the alcoholic to be cured and even return to social drinking if desired. However, this return to normalcy can only occur if the alcoholic is able to recognize, and change his self destructive Parental injunction of 'life script.'

Steiner (1974), supports the above by stating:

> Considering alcoholism a script rather than an incurable disease makes possible a more thorough understanding and a treatment approach which enables a competent practitioner to cure the alcoholic so that he may 'close down the show and put a new one on the road.' (p. xviii)

"The I am not okay, Life Position" leads to the development of an inadequate personality, which may result in alcoholism. This can only be altered, as stated above, by changing the negative 'life script'.

One could continually analyze theories; however, the psychoanalytic, Gestalt and Transactional Analysis explanations of alcoholism are representative of the extent of the various psychological approaches used to explain this social problem.

ALCOHOL CONSUMPTION AND PERSONALITY TRAITS

To date, very little research has been undertaken in relation to predisposing personality traits and excessive levels of alcohol consumption or alcoholism.

Prior to 1960, researchers claimed that aggression and other related traits were associated with alcoholism. However, their decisions were based on the theory of Freud, Adler and the psychoanalytical school or on observations of alcoholics.

The post-1960 researchers tended to use psychological testing to make assumptions about the relationship of alcohol and human temperament traits. The most popular instruments

were the Minnesota Multiphasic Inventory (hereafter designated as M.M.P.I.) and Edward's Personality Preference Scale (hereafter designated as E.P.P.S.)

Reiter, (1970, p. 762) working with the E.P.P.S. compared heavy drinkers and light drinkers and found that the heavy consumers of alcohol obtained high scores on scales for hostile and aggressive fantasies.

McCord and McCord (1962, p. 72) did a longitudinal study of personality of lower class boys from Massachusetts. A personality evaluation of the boys was made before any of them started to consume alcohol. At a later date these were divided into pre-alcoholics (those who had become alcoholics) and into non-alcoholics (those who did not become alcoholics). The two groups were compared and the pre-alcoholic personality was described as being one of "unrestrained aggression" with aggression being defined for the study as "having a low frustration tolerance."

Zucchi and Santangelo (1956, p. 342), studied personality traits of the mentally retarded. They found that those who exhibited high levels of aggression consumed higher amounts of alcohol than their counterparts who had low levels of aggression in their personalities.

Jones (1968, pp. 2-12) studied a group of adolescents who became alcoholics in their adulthood. They revealed that they had a pre-alcoholic personality that exhibited impulsiveness, extroversion and masculinity.

McClelland, (1972) does not support the commonly held medical opinion that men drink to reduce anxiety. He states that, "cross culturally, people whose folk tales express anxiety, drink less--not more. Men drink primarily to feel stronger." (p. 333)

This review of the available literature tends to suggest that aggression, dominance, extroversion, and impulsiveness may be antecedents to high consumption of alcohol and alcoholism.

It was a purpose of this study to note whether the Taylor Johnson Temperament Analysis (T.J.T.A.), when correlated to high alcohol consumption at the Northern Alberta Institute of Technology (N.A.I.T.), will produce results that support the personality pattern linking the above traits to high consumption.

SOCIAL FACTORS ASSOCIATED WITH ALCOHOL CONSUMPTION

Sex

Studies relating sex differences to alcohol usage report that males tend to be higher users than females. Straus and Bacon (1953), in a study of college student drinking habits, reported that, "There were twice as many abstainers among women (39 percent) as among men (20 percent)." (p. 55)

Smart et al., (1973, p. 64) in a study of drug use among Toronto high school students, reported that significantly more males than females used alcohol. Hanson (1972, p. 9)

also supports the above contention that males consume more alcohol than females.

Child et al., (1965) suggest that the male trend to higher consumption "does not appear to be unique to our society, but is characteristic of other western societies." (p. 342)

Several reasons have been suggested for the different patterns of drinking between men and women. Gusfield (1962), p. 102), Myerson (1940, p. 18) and Child et al., (1965, p. 344) refer to the traditional belief that the consumption of alcohol is a male prerogative. Hanson (1972), reviewing the Windham Aldridge Study refers to this difference in alcohol usage between the sexes "as the result of women being traditionally economically dependent and subordinate to men." (p. 12)

Although, as stated above, there is a difference between the sexes in relation to alcohol usage, Hanson (1972) realized an interesting trend had developed when he compared the results of his study and the 1953 Straus-Bacon survey of student drinking. He reports:

> Twenty years earlier there were sixteen percentage points separating males and females. This has now been reduced to only five percentage points. (p. 12)

Hanson (1972, p. 12) also suggested that the above phenomenon may be the result of women becoming better educated and hence more economically independent.

Religion and Ethnic Background

Alexander and Campbell (1967, p. 446), report that the incidence of drinking among members of Southern Baptist, Methodist, Prebysterian, and Mormon religions was less than it was for members of the Catholic and Jewish religions.

The above researchers suggest that the main reason for this phenomenon is that those religions which have the low incidence of drinking "vigorously promote total abstinence." (p. 446)

Maddox and McCall (1964, p. 15), suggest that Protestants are generally lower consumers of alcohol because of the guilt feelings that tend to accompany belief in the "Protestant Ethic."

Straus, in 1953, and Hanson, in 1971, produced studies whose findings support the above pattern. Hanson (1974, p. 10) compared both of these studies, noting that the incidence of alcohol consumption in all religious groups had increased signficnatly, the only exception being the Mormon religion, where the incidence of drinking had declined over the twenty-year period during which the respective studies were conducted.

Bales (1946, pp. 480-498) compared two identifiable groups in the United States; the Jews and the Irish, and their relationship of alcohol consumption. This study reported that alcoholism in the Jewish society was rare, while the incidence among the Irish was high.

McCall and Maddox, 1964, attribute the above ethnic drinking pattern to the fact that "drinking is significantly structured and regulated by cultural definition." (p. 17)

Jewish drinking is far more structured than Irish usage of alcohol; hence, the lower rate of alcoholism in the Jewish religion.

Straus and Bacon (1953, p. 52), in a study of college students, report that the incidence of alcohol consumption is high among those ethnic groups such as the French and Italians, where the consumption is considered a normal part of their daily requirement.

Influence of Peers and Parents

Studies tend to suggest that there are two major motives for adolescent drinking. The first is that they are strongly influenced by the "adolescent subculture" or peer group, and the second is that they perceive drinking as a typical adult practice and attempt to emulate it. The following studies are representative of both these schools of thought.

Forslund and Gustafson (1970, p. 874) report from their study on adolescent drinking habits that the effectiveness of peer influence was significantly related to whether or not a senior high school student would drink alcoholic beverages away from his parents. If he only drank at home, peer influence was considered significantly reduced.

Alexander and Campbell (1967) support the above, but add that:

> Peer influence also influences various aspects of an individual's behaviour and attitudes towards alcohol apart from his drinking behaviour. (p. 451)

Maddox and McCall (1964), however, place most of the responsibility for adolescent drinking on the parental influence and peer group association. They state that:

> The influence of age peers, while perhaps important in determining the specific timing and occasions for some drinking among teenagers is less important than the teenager's perception of alcohol use as an integral part of adult behaviour. (p. 41)

The above writers (1964, p. 44) conclude that the older teenager, who has identified or had experience with adult roles, will more likely be a user and identify himself as a drinker.

Forslund and Gustafson (1970, p. 872) also support the idea that parents--not peers--have the greatest impact on adolescent drinking. In their study of senior high school students, they found that a higher proportion of both boys and girls drink when either the father or mother use alcohol.

Halloway (1965), reporting on student attitudes to alcohol usage states:

> Students who have witnessed inebriety in their own parents tend to look on the condition of drunkenness with a feeling of amusement more than students who have not. (p. 18)

This again supports the contention that parental use of alcohol has a significant effect on the attitude of the adolescent toward alcohol usage.

Academic Grades

The following studies are representative of the relationship of alcohol consumption and academic performance. They suggest that alcohol is negatively correlated with academic performance. LeDain et al., (1973) states:

> Heavy or frequent users of alcohol almost invariably have poorer grades than light users or abstainers. (p. 393)

Smart et al., (1972, p. 70), found in a study of Toronto high school students that the highest proportion of alcohol users were found to have a grade average of 51 percent to 65 percent. Halloway (1967, p. 40), reported that only 19 percent of abstainers were poor scholars.

Goethals and Waters (1972, p. 93), in a study concerning life styles of undergraduates in United States colleges found that a comparison of once-a-week drinkers with all other non-drinking students, revealed significantly lower grades for the former, especially for students in their first year.

Size of Community

Maddox (1970, p. 89), commenting on an Iowa population survey in relation to alcohol consumption, stated that among city dwellers the proportion of light drinkers diminishes and the proportion of heavy users increased as the level of education increased. The reverse was true for the farm dwellers: as the level of education increased, alcohol usage intended to decrease.

Halloway (1964), in a study concerned with high school drinking, found that the geographic location affects a person's attitude to alcohol usage. He states:

> The more sophisticated urban dweller is less likely to think it wrong to drink than respondents living in rural areas devoted primarily to agriculture. (p. 10)

Level of Knowledge

Very little information is available about students' levels of knowledge of alcohol. Of the few studies available, Halloway's (1965) study of the level of knowledge of Manitoba high school students showed that:

> Out of eight questions, a majority of our sample were only able to answer three correctly. (p. 30)

An example of a question that was poorly answered in his 1965 study is: "Do small quantities of alcohol harm one's health?" (p. 27)

Halloway (1965, p. 32) found that the less students perceived their parents as being disposed to alcohol, the more they tended to respond positively to the above question. He therefore concluded that a student's level of knowledge about alcohol is often heavily influenced by attitudes of the home. This is probably related to the lack of alcohol education.

Roe (1973), commenting on the need for alcohol education, states:

> The time is fast approaching when college administrators must be prepared to admit they are ignoring a counselling problem of tragic magnitude or be prepared to begin alcohol education programs on their campuses. (p. 28)

One of the purposes of this study was to report on and compare N.A.I.T. student demographic, social, and personal trends, gathered by the student alcohol questionnaire, to the patterns and trends that have been reviewed in the latter parts of this chapter.

CHAPTER III

METHODOLOGY

THE SAMPLE

The study was limited to N.A.I.T. students. An original random sample of 700 students was selected from 3,700 full-time day students and was stratified according to their enrollment in 50 technologies. This sample represented almost 20 percent of the technology population at N.A.I.T.

The random sample was obtained by using a computer program, which was provided by the Department of Computing Services, N.A.I.T. This program was designed by the Control Data Corporation and utilizes the random number generator to obtain random selections.

No apprenticeship students or evening students were included in the sample. The major reasons for these omissions were that apprenticeship students are only in attendance at the Institute for a brief period each year, and it is difficult to organize testing times for evening students who only attend part time.

The reason for the large original sample was that it was not possible to make student participation compulsory. This decision was also influenced by Hughes (1971, pp. 81-82), who completed a marihuana study at N.A.I.T. He reported that approximately half of his original sample did not report to participate in his study.

In this study, which was primarily concerned with alcohol consumption and personality traits, 338 students, or 48 percent of the original sample, reported for testing. This represented approximately 10 percent of the full-time day technology students of N.A.I.T.

DATA GATHERING INSTRUMENTS

Four Instruments were employed: namely, the T.J.T.A., The Iowa Scale of Preoccupation with Alcohol, The Quantity Frequency Index and The N.A.I.T. Student Questionnaire.

The Taylor Johnson Temperament Analysis

This test was used to measure the degree to which the students exhibit the following personality traits: nervous depressive, active-social, expressive-responsive, sympathetic, subjective, dominant, hostile and impulsive. Each of these traits have an opposite trait at the other end of the continuum scale. For example, a high score on the impulsive trait indicates that low amounts of the opposite trait, self discipline, were evident in that particular personality profile.

This test was originally developed in 1941 by Johnson. It was carefully revised in 1963 by Taylor and Morrison to ensure that the items were correctly assigned to their traits. Mosher (1972) states:

> There is a marked high correlation between The Taylor Johnson Temperament Attitude Scale and the M.M.P.I. K Scale (p. 572).

He also mentions that correlations have been completed between the T.J.T.A., E.P.P.S., and M.M.P.I. The results tended to support the validity of the T.J.T.A.

Romoser (1966) studied the independence of the scales of T.J.T.A. He concluded that:

> A factor analysis indicated that each of the T-J scales measures some trait distinct from the traits measured by the other scales. (p. 35)

A more practical rationale for utilizing this test was that it is extensively used by the N.A.I.T. counselling staff; therefore, the results will be easily assimilated into the data bank of the counselling centre.

The Iowa Scale of Preoccupation with Alcohol

This test was developed by Mulford and Miller in 1958. Mulford and Miller (1960, p. 280) reported that it has a Guttman Co-efficient of Reproducibility of .958. The empirical validity was tested by investigation of the logical interrelationship of the preoccupation scale and other factors such as high level of consumption, definition of alcohol, and trouble due to drinking. Miller and Mulford (1960), found that the scale was highly predictive of the above factors. They concluded:

> The preoccupation scale may be a useful index for identifying 'alcoholics' in the general population of Iowa. (p. 291)

Miller and Mulford (1960, p. 280) also report that an individual is considered preoccupied with alcohol if he or she

positively answers two or more questions in any one of the four categories. These four categories were developed to represent all the different types of symptoms that an alcoholic may exhibit.

The Quantity Frequency Index (Appendix A)

Mulford and Miller (1960, p. 27) report that this instrument was originally developed by Straus and Bacon in 1953, and later modified by Maxwell in 1958. Mulford and Miller then used this instrument to classify drinkers in the general population of the State of Iowa in 1960. The investigator utilized a Quantity Frequency Index similar to the one used by Mulford and Miller. However, adjustments to the quantity section were required due to the higher alcoholic content of Canadian beer as compared to American beer.

To determine a subject's level of alcohol consumption, that individual must answer two questions: the first is how frequently one uses alcohol, and the second refers to the average amount of alcohol consumed at a regular sitting. The responses to these questions are combined to classify the individual as a light, medium or heavy user of alcohol. (See Definition of Terms, Chapter I)

Straus and Bacon (1953) stressed that:

> The quantity-frequency indices are merely conceptual tools which will be used as convenient measures in considering the relationship between the extent of drinking and various other aspects of behaviour. (p. 105)

This precisely supports the reason for selecting this type of instrument for this study.

The N.A.I.T. Student Questionnaire (Appendix B)

This is a brief questionnaire developed by the investigator to monitor the demographic variables and behavioural characteristics of the student population in relation to alcohol consumption. A delimitation of the study was the assumption that the students' responses to the questionnaire items were both honest and accurate.

PROCEDURE

A pilot study was conducted among fifty randomly selected students to determine whether the Quantity Frequency Index would satisfactorily spread the N.A.I.T. student population into low, medium and high alcohol consumption levels. This study was also used to examine the suitability of the N.A.I.T. Student Questionnaire, which was designed to gather information on student characteristics relating to alcohol consumption.

The results of the pilot study indicated that 20 percent were low consumers of alcohol, 55 percent were medium consumers and 25 percent were high consumers of alcohol.

This normal curve relationship meant that the Quantity Frequency Index, Instrument III, would satisfy the parameters of this study.

As a result of this pilot study, some of the questions concerning student characteristics were altered or rephrased. This study also demonstrated that the four tests could be completed within 60 minutes which was the time allotted for each testing session.

A stratified random sample of 700 students was then obtained from the N.A.I.T. Computing Services. A letter (Appendix C), was sent to these students' homes inviting them to participate. The letter indicated the date and time of testing. It also assured the student that great care had been taken to conceal identity on the testing day and indicated that those students who wanted their test results would be able to place their names on the answer sheets and collect the results from the investigator.

This letter was personally endorsed by N.A.I.T. President, G. W. Carter, in an attempt to encourage as many students as possible to participate.

Participation was also encouraged by the placement of an article in the N.A.I.T. newspaper (N.A.I.T. Nugget, February 12, 1975, p. 1).

The students involved in the study were requested to attend one of the four one-hour testing sessions. These sessions took place in the N.A.I.T. auditorium on Wednesday, February 19, 1975 and Wednesday, February 26, 1975, between 12 noon and 2 p.m. This time period was selected because it

coincided with the lunch hour and student common hour. Therefore no class time was involved. Each of these sessions accommodated 200 students, except for the concluding one, where only 100 students were tested.

After testing was completed, the various instruments were marked and the results were then recorded on the answer sheet (Appendix D). This information was then key punched, verified on data cards and was analyzed by the computer.

ANALYSIS OF DATA

The analysis of the data is described in Chapter IV and is divided into two sections: analytical statistics and descriptive statistics.

The analytical statistics are utilized in order to test the hypotheses of this thesis which are listed in Chapter I. Analysis of Variance was used to determine whether there is any significant difference beyond the .05 level of confidence between low, medium and high users of alcohol, and their scores on the various personality traits measured by the T.J.T.A. test.

The same statistical tool was used to determine if there were any significant differences beyond the .05 level of confidence between the social correlates reported by the students on the questionnaire, (Appendix B), and their level of alcohol usage.

Percentages were computed for descriptive purposes in

order to report the rate of usage of alcohol among the students. For example, this permitted discussion of the percentages of high, medium and low users who exhibit various social characteristics.

CHAPTER IV

RESULTS

ANALYTICAL STATISTICS

The hypotheses stated in Chapter I are re-stated together with the appropriate findings and conclusions. In addition, many interesting results emerged which are ancillary to the formal hypotheses. The concluding section of the chapter will be concerned with these descriptive statistics.

PERSONALITY TRAITS ASSOCIATED WITH ALCOHOL CONSUMPTION

Hypothesis 1: Hostility

High users of alcohol will have significantly higher levels of hostility in their personalities than medium and low users of alcohol.

Findings

To test Hypothesis 1, an Analysis of Variance was performed on the scores of high, medium and low users of alcohol and on their scores on the hostility variable of the T.J.T.A. Table 1 reveals that there was a significant difference beyond the .05 level of confidence between the mean scores of the high users and the mean scores of the medium and low users of alcohol.

TABLE 1

RELATIONSHIP OF ALCOHOL CONSUMPTION
TO T.J.T.A. HOSTILITY TRAITS

Level of Alcohol Consumption	Number in Each Group	Mean Raw Scores on the T.J.T.A. Hostility Trait	Analysis of Variance
Low	85	12.1059	.005* significance level between the groups
Medium	151	12.3311	
High	93	15.2366	
Total	329		

* Significant beyond the .05 level of confidence

The above relationship is also depicted by the curve shown in Figure 1.

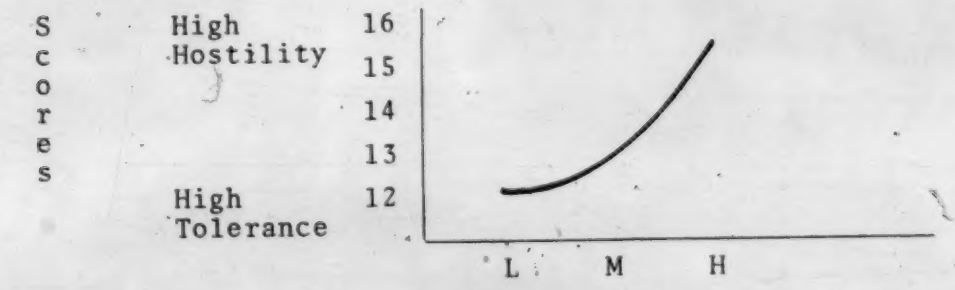

FIGURE I

RELATIONSHIP OF ALCOHOL CONSUMPTION TO
T.J.T.A. SCORES ON
HOSTILITY--TOLERANCE TRAITS

Conclusion

Since significant differences existed beyond the .05 level when the low, medium and high groups were compared, it can be concluded that high users of alcohol will have higher hostility levels in their personalities than low and medium users. On the basis of these results, Hypothesis 1 is supported.

Hypothesis 2: Dominance

High users of alcohol will have significantly higher levels of dominance in their personalities than medium and low users of alcohol.

Findings

To test Hypothesis 2, an Analysis of Variance was performed on scores of the high, medium and low users of alcohol and on their scores on the dominant variable of the T.J.T.A.

Table 2 reveals that there was no significant relationship between dominance and the different levels of alcohol consumption beyond the .05 level of confidence.

TABLE 2

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. DOMINANCE TRAITS

Level of Alcohol Consumption	Number in Each Group	Mean Raw Scores on the T.J.T.A. Dominance Trait	Analysis of Variance
Low	85	19.5294	.440* significance level between the groups
Medium	151	20.6954	
High	93	20.6559	
Total	329		

* Not significant beyond the .05 level of confidence

Conclusion

Since no significant differences existed beyond the .05 level of confidence, high, medium and low users of alcohol will have no significant differences in levels of dominance in their personalities. The above results reject Hypothesis 2.

Hypothesis 3: Expressive-Responsive

High users of alcohol will have significantly higher levels of the expressive-responsive component in their personalities than medium and low users of alcohol.

Findings

To test Hypothesis 3, an Analysis of Variance was performed on the scores of high, medium, and low users of alcohol and on their scores on the expressive-responsive variable on the T.J.T.A. Table 3 revealed that there was a significant difference beyond the .05 level of confidence between the mean scores of the medium users of alcohol and the mean scores of the high and low users. The greatest difference was between the medium and low group.

TABLE 3

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. EXPRESSIVE-RESPONSIVE TRAITS

Level of Alcohol Consumption	Number in Each Group	Mean Raw Scores on the T.J.T.A. Expressive-Responsive Trait	Analysis of Variance
Low	85	22.2823	.003* significance level between the groups
Medium	151	26.0265	
High	93	24.5484	
Total	329		

* Significant beyond the .05 level of confidence

The above relationship is also depicted by the normal or bell-shaped curve shown in Figure 2 on the following page.

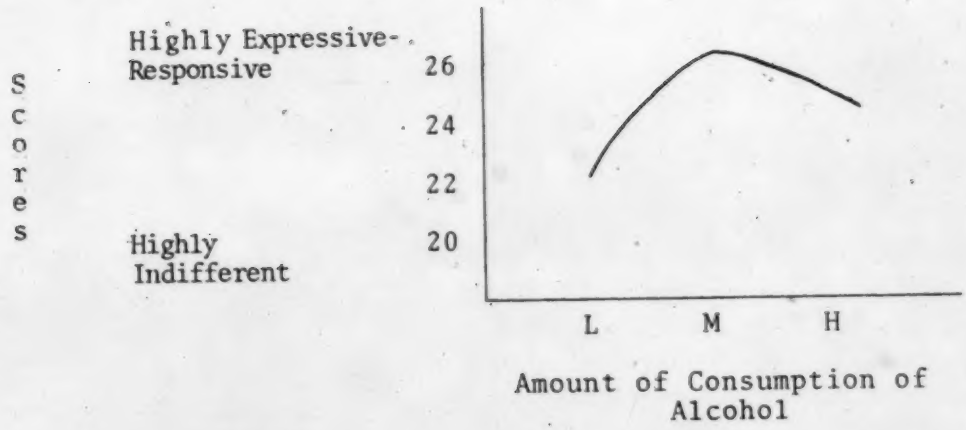

FIGURE 2

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A SCORES ON EXPRESSIVE-RESPONSIVE--INDIFFERENT TRAITS

Conclusion

Since significant differences did exist beyond the .05 level of confidence between the medium, high and low users of alcohol, it can be concluded that medium users will have a higher level of expressiveness and responsiveness in their personalities than the low and high consumers. On the basis of these results, Hypothesis 3 is rejected.

Hypothesis 4: Active-Social

High users of alcohol will have significantly higher levels of the active-social component in their personalities than medium and low users of alcohol.

Findings

To test Hypothesis 4, an Analysis of Variance was performed on the high, medium, and low users of alcohol and on their scores on the active-social variable of the T.J.T.A.

Table 4 revealed that there was a significant difference at the .05 level of confidence between the mean scores of the high and medium users of alcohol and the mean score of the low users of alcohol.

TABLE 4

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. ACTIVE-SOCIAL TRAITS

Level of Alcohol Consumption	Number in Each Group	Mean Raw Scores on the T.J.T.A. Active-Social Trait	Analysis of Variance
Low	85	24.2235	.009* significance level between the groups
Medium	151	27.4160	
High	93	27.0850	
Total	329		

* Significant beyond the .05 level of confidence

This relationship is also depicted by Figure 3 on the following page.

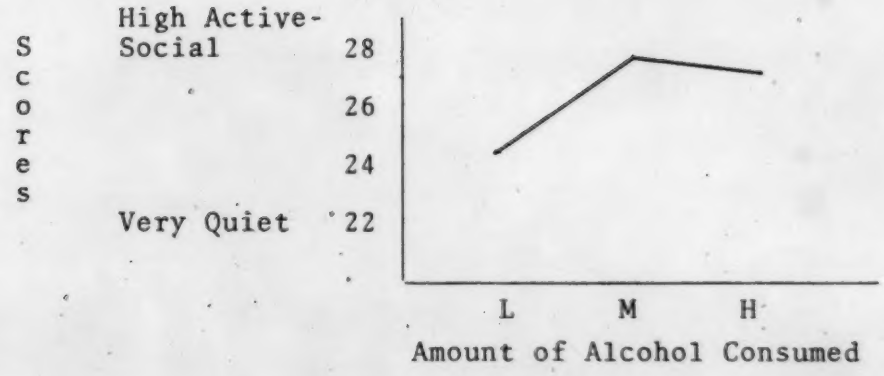

FIGURE 3

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. SCORES ON ACITVE-SOCIAL--QUIET TRAITS

Conclusion

Since significant differences existed beyond the .05 level between the low, medium and high groups, it can be concluded that medium users of alcohol will have higher levels of the active-social trait in their personalities than the high and low users of alcohol. On the basis of these results, Hypothesis 4 is rejected.

Hypothesis 5: Impulsiveness

High users of alcohol will have significantly higher levels of impulsiveness in their personalities than low users of alcohol.

Findings

To test Hypothesis 5, an Analysis of Variance was performed on the high, medium and low users of alcohol and on their scores on the self-discipline--impulsive variable of the T.J.T.A. It should be noted that higher scores on this

index referred to higher levels of self discipline, while lower scores referred to higher levels of impulsiveness.

Table 5 revealed that there was a highly significant difference beyond the .05 level of confidence between the high users of alcohol, the medium and low users of alcohol.

TABLE 5

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. IMPULSIVENESS TRAITS

Level of Alcohol Consumption	Number in Each Group	Mean Raw Scores on the T.J.T.A. Self discipline-Impulsive Trait	Analysis of Variance
Low	85	23.7882	.000* significance level between the groups
Medium	151	21.5033	
High	93	18.8817	
Total	329		

* Significant beyond the .05 level of confidence

The above findings are also depicted by the linear relationship shown in Figure 4 on the following page.

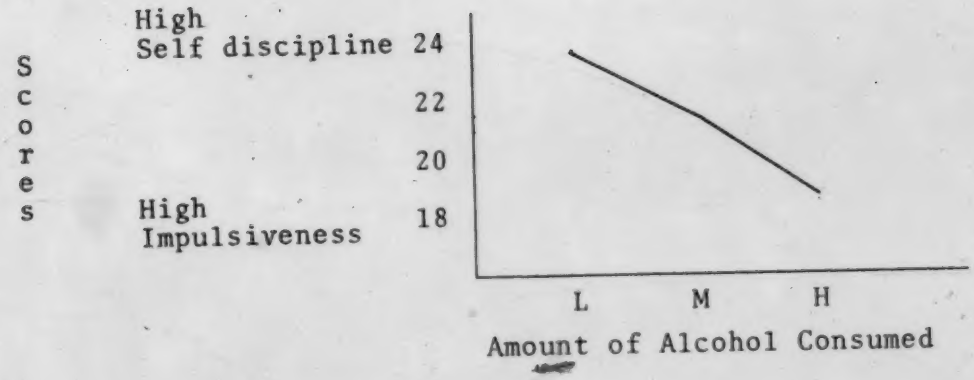

FIGURE 4

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. SCORES ON SELF DISCIPLINE--IMPULSIVENESS TRAITS

Conclusion

Since significant differences existed beyond the .05 level of confidence, between the low, medium and high groups, it can be concluded that high users of alcohol will have higher levels of impulsiveness in their personalities than medium or light users of alcohol. As can be clearly observed from Figure 4, as the level of alcohol increases so does the level of impulsiveness. The converse also applies: as the level of alcohol decreases the level of self discipline in a person's personality increases. On the basis of these results, Hypothesis 5 is supported.

Hypothesis 6: Nervousness

There will be no significant relationship between high, medium and low users of alcohol and the level of nervousness in their personalities.

Findings

To test Hypothesis 6, an Analysis of Variance was performed on the high, medium and low users of alcohol and on their scores on the nervous variable of T.J.T.A. Table 6 below reveals that there was no significant difference between the means of high, medium and low users of alcohol at the .05 level of confidence.

TABLE 6

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. NERVOUSNESS TRAITS

Level of Alcohol Consumption	Number in Each Group	Mean Raw Scores on the T.J.T.A. Nervous Trait	Analysis of Variance
Low	85	14.0824	.493* significance level between the groups
Medium	151	13.9669	
High	93	15.0430	
Total	329		

* Not significant beyond the .05 level of confidence

Conclusion

Since no significant differences exist beyond the .05 level of confidence, high, medium and low users of alcohol will have no significant difference in the nervous levels in their personalities. The above results support Hypothesis 6.

Hypothesis 7: Depression

There will be no significant relationship between high, medium and low users of alcohol and the level of depression in their personalities.

Findings

To test Hypothesis 7, an Analysis of Variance was performed on the high, medium and low users and on their scores on the depressive variable on the T.J.T.A. Table 7 below reveals that there was no significant difference between the means of the high, medium and low users of alcohol at the .05 level of confidence.

TABLE 7

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. DEPRESSION TRAITS

Level of Alcohol Consumption	Number in Each Group	Mean Raw Scores on the T.J.T.A. Depressive Trait	Analysis of Variance
Low	85	13.8235	.64* significance level between the groups
Medium	151	13.0397	
High	93	14.0108	
Total	329		

* Not significant beyond the .05 level of confidence

Conclusion

Since no significant difference existed beyond the .05 level of confidence, high, medium and low users of alcohol will have no significant difference in the depressive levels in their personalities. The above results support Hypothesis 7.

Hypothesis 8: Sympathy

There will be no significant relationship between high, medium and low users of alcohol and the level of sympathy in their personalities.

Findings

To test Hypothesis 8, an Analysis of Variance was performed on the high, medium and low users and on their scores on the sympathy variable of the T.J.T.A. Table 8 below revealed that there was no significant difference between the means of the high, medium and low users of alcohol at the .05 level of confidence.

TABLE 8

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. SYMPATHY TRAITS

Level of Alcohol Consumption	Number in Each Group	Mean Raw Scores on the T.J.T.A. Sympathy Trait	Analysis of Variance
Low	85	27.7176	.287* significance level between the groups
Medium	151	29.0530	
High	93	28.2473	
Total	329		

* Not significant beyond the .05 level of confidence

Conclusion

Since not significant difference existed beyond the .05 level of confidence, high, medium and low users of alcohol will have no significant difference in the level of sympathy in their personalities. The above results support Hypothesis 8.

Hypothesis 9: Subjectiveness

There will be no significant relationship between high, medium and low users of alcohol and the level of subjectiveness in their personalities.

Findings

To test Hypothesis 9, an Analysis of Variance was performed on the high, medium and low users and on their scores on the subjective variable of the T.J.T.A. Table 9 below reveals:

TABLE 9

RELATIONSHIP OF ALCOHOL CONSUMPTION TO T.J.T.A. SUBJECTIVENESS TRAITS

Level of Alcohol Consumption	Number in Each Group	Mean Raw Scores on the T.J.T.A. Subjective Trait	Analysis of Variance
Low	85	16.1882	.677* significance level between the groups
Medium	151	16.5563	
High	93	17.1505	
Total	329		

* Not significant beyond the .05 level of confidence

Conclusion

Since no significant difference existed beyond the .05 level of confidence, high, medium and low users will have no significant difference in the subjective levels in their personalities. The above results support Hypothesis 9.

Hypothesis 10: Preoccupation with Alcohol

There will be a significant relationship between those students classified as being high consumers of alcohol and those classified as being preoccupied with alcohol.

Findings

To test Hypothesis 10, an Analysis of Variance was performed on the high, medium and low users and on their scores on the Iowa Preoccupation With Alcohol Test. A score of 1 means preoccupied with alcohol; a score of 2 means not preoccupied with alcohol. Table 10 on the following page revealed that there was a very high level of significance beyond the .05 level of confidence between the high, medium and low users of alcohol.

TABLE 10

RELATIONSHIP OF ALCOHOL CONSUMPTION
TO PREOCCUPATION WITH ALCOHOL

Level of Alcohol Consumption	Number in Each Group	Mean Score on the Iowa Pre-occupation with Alcohol Test	Analysis of Variance
Low	85	2.000	.000* significance level between the groups
Medium	151	1.9139	
High	93	1.4516	
Total	329		

* Significant beyond the .05 level of confidence

The above findings are also depicted by the curved relationship shown below in Figure 5.

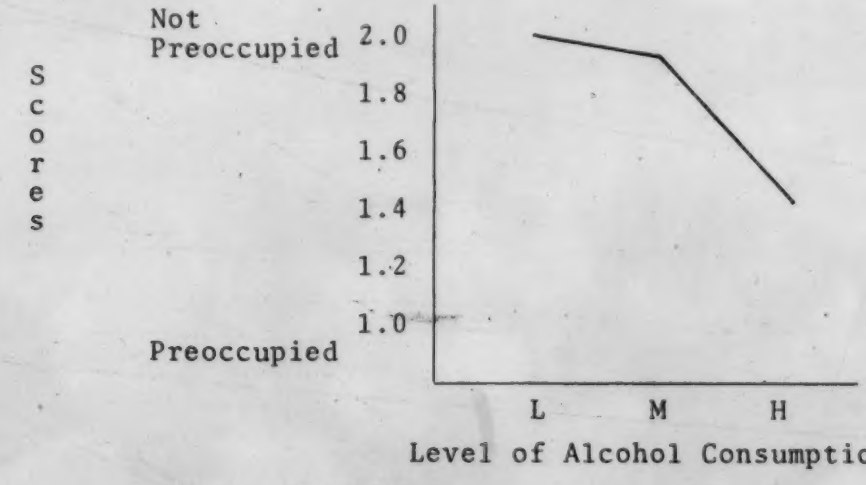

FIGURE 5

RELATIONSHIP OF ALCOHOL CONSUMPTION
TO SCORES ON THE IOWA PREOCCUPATION WITH ALCOHOL SCALE

Conclusion

Since significant differences existed beyond the .05 level of confidence between high users, the medium and low users, it can be concluded that high users of alcohol will be preoccupied with alcohol. Figure 5, on the previous page, shows that very few medium users will be preoccupied with alcohol. The above results support Hypothesis 10.

SOCIAL FACTORS ASSOCIATED WITH ALCOHOL CONSUMPTION

Hypothesis 11: (A to N)

Students classified by the Quantity Frequency Scale will exhibit differences on social correlates such as sex differences, age, religion, ethnic background, size of home-town, and the following questionnaire test items: vocational interest, school grades, introduction to alcohol, age of first drink, drinking habits, alcohol consumption of parents and level of knowledge about alcohol.

As stated in Chapter 3, the Quantity Frequency Index classified the students as high, medium and low users of alcohol. For the purposes of statistical analysis, the low users were given a numerical value of 1, medium users a value of 2, and the high users were labelled 3.

Hypothesis 11 (A): Sex

Findings

Analysis of Variance was used to test for differences between the sexes in relation to their scores on the Quantity Frequency Scale which predicted their level of alcohol consumption. Table 11 revealed that there was a very high level between males and females in relation to the level of alcohol consumed.

TABLE 11

RELATIONSHIP BETWEEN SEX DIFFERENCE AND LEVEL OF ALCOHOL CONSUMPTION

Sex Difference	Number in Each Group	Mean Score on the Quantity Frequency Scale	Analysis of Variance
Females	123	1.8699	.004* significance level between the groups
Males	206	2.1165	
Total	329		

* Significant beyond the .05 level of confidence

Conclusion

The above figures show that males are significantly higher consumers of alcohol than females in this study.

Hypothesis 11 (B): Religion

Findings

Analysis of Variance was used to test for differences in students' religious beliefs and their scores on the Quantity Frequency Index, which was used to determine the level of alcohol consumption. Table 12 revealed that there was no significant difference at the .05 level of confidence between the various religions and the level of alcohol consumption of the students.

TABLE 12

RELATIONSHIP BETWEEN RELIGION AND LEVEL OF ALCOHOL CONSUMPTION

Name of Religion	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
Baptist	18	1.9444	.065*
Orthodox	11	2.0000	significance
Lutheran	31	2.0000	level
United	96	2.1250	between
Anglican	85	2.0000	the
Atheist of Agnostic	10	2.4000	groups
Catholic	78	2.0549	
Jewish	1	3.0000	
Other	46	1.7174	
Total	329		

* Not significant beyond the .05 level of confidence

Conclusion

Although, as stated above, there was no significant difference at the .05 level of confidence, it should be noted that a .065 level suggests the differences between the groups are approaching significance.

Hypothesis 11 (C): Population of Hometown Community

Findings

Analysis of Variance was used to test whether there were any significant differences between the size of the hometown and the level of alcohol usage as determined by the Quantity Frequency Index scores. Table 13 below revealed that there is a significant difference between the means, particularly between the rural communities under 10,000 and the urban centre with over 100,000.

TABLE 13

RELATIONSHIP BETWEEN POPULATION OF HOMETOWN COMMUNITY AND LEVEL OF ALCOHOL CONSUMPTION

Population of Community	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
Over 100,000	173	1.9422	.033*
Between 10,000 - 99,999	33	1.9091	significance level
Under 10,000	55	2.2364	between the
Farm	68	2.1176	groups
Total	329		

* Significant beyond the .05 level of confidence

Conclusion

The above findings showed that students from small towns and from farms consumed significantly higher amounts of alcohol than those from larger urban centres.

Hypothesis 11 (D): Student Grades

Findings

Analysis of Variance was used to test whether there were any significant differences between student grades and their level of alcohol usage as determined by the Quantity Frequency Index scores. Table 14 below revealed that there was no significant differences in the level of alcohol usage between the groups.

TABLE 14

RELATIONSHIP BETWEEN STUDENT GRADES AND LEVEL OF ALCOHOL CONSUMPTION

Level of Student Grades	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
90% and over	14	1.7857	.433*
80% - 89%	89	1.9775	significance
70% - 79%	116	2.0000	level
60% - 69%	77	2.1299	between
50% - 59%	26	2.1923	the
Less than 50%	4	2.0000	groups
Total	326		

* Not significant beyond the .05 level of confidence

Conclusion

The students' grades are not significantly affected by the level of alcohol consumption.

Hypothesis 11 (E): Introduction to Alcohol

Findings

Analysis of Variance was used to test whether there were any significant differences between who influenced students to commence using alcohol and the amount of alcohol consumed by those students as determined by the Quantity Frequency Index Scores. Table 15 revealed that there was not significant difference between who introduced the students to alcohol and the student's level of alcohol usage.

TABLE 15

RELATIONSHIP BETWEEN INTRODUCTION TO ALCOHOL AND LEVEL OF ALCOHOL CONSUMPTION

Who Introduced You to Alcohol	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
Parents	119	1.9580	.093*
Friends	134	2.0597	significance
Self	58	2.2414	level between
Other	10	1.9000	the groups
Total	321		

* Not significant beyond the .05 level of confidence

Conclusion

The person who introduced the student to alcohol has no significance on the level of alcohol usage of those students.

Hypothesis 11 (F): Alcohol Consumption of Mother

Findings

Analysis of Variance was used to test whether there was any significant difference between the amounts of alcohol consumed by mothers of students and the level of alcohol consumed by those students as determined by their scores on the Quantity Frequency Index. Table 16 revealed that there was a significant difference between the groups beyond the .05 level of confidence.

TABLE 16

RELATIONSHIP BETWEEN ALCOHOL CONSUMPTION OF MOTHER AND LEVEL OF STUDENT ALCOHOL CONSUMPTION

Amounts of Alcohol Consumed by Mother	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
Small Amounts	195	2.0513	.037* significance level between the groups
Medium Amounts	40	2.1500	
Large Amounts	4	2.7500	
No Amounts	88	2.0275	
Total	329		

* Significant beyond the .05 level of confidence

Conclusion

Students whose mothers consume large amounts of alcohol are significantly higher consumers of alcohol than are students whose mothers consumed smaller quantities. However, before drawing any binding conclusions, one should be aware of great variance in group size. Table 16 indicates that there were only 4 mothers who consumed large amounts and 195 who consumed small amounts.

Hypothesis 11 (I): Alcohol Consumption of Father

Findings

Analysis of Variance was used to test whether there was any significant difference between the amounts of alcohol consumed by the fathers of the students and the level of alcohol consumption of those students as determined by their scores on the Quantity Frequency Index. Table 17 revealed that there was no significant difference between the groups at the .05 level of confidence.

TABLE 17

RELATIONSHIP BETWEEN ALCOHOL CONSUMPTION OF FATHER AND LEVEL OF STUDENT ALCOHOL CONSUMPTION

Amounts of Alcohol Consumed by Father	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
Small Amounts	127	1.9921	.150*
Medium Amounts	123	2.1057	significance level
Large Amounts	30	2.1000	between the
No Amounts	48	1.8333	groups
Total	328		

* Not significant beyond the .05 level of confidence

Conclusion

Students whose fathers consumed large amounts of alcohol are not significantly higher or lower consumers of alcohol than students whose fathers consumed lower amounts of alcohol.

Hypothesis 11 (J): Students Who Perceive Alcohol As A Threat To Health

Findings

Analysis of Variance was used to test whether there was any significant difference between the amount of alcohol

consumed by students as determined by their scores on the Quantity Frequency Index and how they responded to the question, "Is the consumption of excessive amounts of alcohol harmful to the body?" Table 18 revealed that there was a significant difference between the groups. The group that responded negatively to the question was a significantly higher consumer of alcohol.

TABLE 18

RELATIONSHIP BETWEEN STUDENTS WHO PERCEIVE ALCOHOL AS A THREAT TO HEALTH AND LEVEL OF ALCOHOL CONSUMPTION

Students Perceiving Threat of Alcohol	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
Positive Response	241	1.9876	.015* significance level between the groups
Negative Response	64	2.2500	
Not Sure	22	1.8182	
Total	327		

* Significant beyond the .05 level of confidence

Conclusion

Students who perceive the consumption of excessive amounts of alcohol as not harmful to the human body, consumed significantly higher levels than those students who either view alcohol as a threat to the human body or who do not have sufficient knowledge to offer an opinion.

Hypothesis 11 (K): Vocational Interest

Findings

Analysis of Variance was used to test whether there was any significant difference between the level of alcohol consumed by the students as determined by their scores on the Quantity Frequency Index and their vocational interests. Table 19 revealed that there is no significant difference between the vocational groups in relation to the amount of alcohol consumed.

TABLE 19

RELATIONSHIP BETWEEN VOCATIONAL INTEREST AND LEVEL OF ALCOHOL CONSUMPTION

Technology Group	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
Medical	55	1.9636	.087* significance level between the groups
Creative	61	1.8525	
Business	108	2.1389	
Engineering	93	2.0430	
Total	317		

* Not significant beyond the .05 level of confidence

Conclusion

The type of vocation selected by the student had no significant influence on the amount of alcohol consumed by

the students. It should be noted that the level of significance between the groups approached the acceptable level of significance. Business, followed by Engineering technologies were the highest alcohol-consuming groups.

Hypothesis 11 (L): Age

Findings

Analysis of Variance was used to test whether there was any significant difference between the level of alcohol consumed by the students as determined by their scores on the Quantity Frequency Index and the age of the students. Table 20 revealed that there was no significant difference between the groups.

TABLE 20

RELATIONSHIP BETWEEN AGE AND LEVEL OF ALCOHOL CONSUMPTION

Age Groups	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
Under 17	0	0.0000	.678*
17 - 19	178	2.0337	significance
20 - 22	110	2.0636	level
23 - 25	20	1.9000	between
26 - 30	12	1.7500	the
Over 30	8	1.8750	groups
Total	328		

* Not significant beyond the .05 level of confidence

Conclusion

There was no significant difference between students' ages and the amount of alcohol they consume.

Hypothesis 11 (M): Ethnic Background

Findings

Analysis of Variance was used to test whether there was any significant difference between the amount of alcohol consumed by the students as determined by their scores on the Quantity Frequency Index and the ethnic background of the students. Table 21 revealed that there was a significant difference between the various ethnic groups in relation to the amount of alcohol consumed.

TABLE 21

RELATIONSHIP BETWEEN ETHNIC BACKGROUND AND THE LEVEL OF ALCOHOL CONSUMPTION

Ethnic Group	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
British	75	2.1600	.042*
German	41	1.9608	significance
Ukranian	51	2.1569	level
Oriental	4	1.2500	between
French	15	2.2000	the
3rd Generation Canadian	63	2.0952	groups
American	4	1.7500	
Irish	15	1.8667	
Other	61	1.8197	
Total	329		

* Significant beyond the .05 level of confidence

Conclusion

Ethnic background of the student does have a significant effect on the level of his or her alcohol consumption. Students within the French ethnic group had the highest level of consumption followed by Ukranian and British groups. While studying the above table, it should be realized that the variance in group size may distort the true significance levels.

Hypothesis 11 (N): Age of First Drink

Findings

Analysis of Variance was used to test whether there was any significant differences between the amount of alcohol consumed and the age at which the students had their first drink of alcohol. Table 22 shows that there was a significant difference between the groups.

TABLE 22

RELATIONSHIP BETWEEN AGE OF FIRST DRINK AND LEVEL OF ALCOHOL CONSUMPTION

Age of First Drink	Number in Each Group	Mean Quantity Frequency Scores	Analysis of Variance
Under 8	51	1.9804	.01* significance level between the groups
8 - 10	35	2.0286	
11 - 12	39	2.1795	
13 - 14	76	2.2895	
15 - 16	81	1.9630	
17 - 18	32	1.7188	
19 - 20	4	1.7500	
21 - 24	2	2.5000	
Over 25	0	0	
Total	320		

* Significant beyond the .05 level of confidence

Conclusion

From the results, there appears to be a trend towards early imbibing among the students who are the high consumers of alcohol. This trend as shown in Table 22, reaches its peak between the ages of thirteen and fourteen.

DESCRIPTIVE STATISTICS

Of the 338 N.A.I.T. students used in this study, 329, or 94 percent, reported having consumed alcohol. This alcohol consumption group consisted of 208 males and 123 females.

Table 23 reveals that beer was the most popular alcohol beverage consumed by the students. Over half the students sampled preferred beer to the other alcoholic beverages.

TABLE 23

ALCOHOLIC BEVERAGE PREFERENCES OF THE STUDENTS

Alcoholic Beverages	Number Preferring Various Beverages	Percentage Preferring Various Beverages	Percentage of Males Preferring Various Beverages	Percentage of Females Preferring Various Beverages
Beer	196	59.2	70	41
Liquor	83	26.7	17	36
Wine	45	14.1	13	23
Total	329	100.0	100	100

Table 23 also shows an interesting pattern of alcohol preference between the males and females in this study. The males predominately preferred beer where as the females' alcoholic beverage preferences were more evenly spread among beer, liquor and wine. Table 23 also very clearly shows that a greater percentage of females preferred liquor and wine then did the males in this study.

The Quantity Frequency Index was used to distribute the 329 alcohol users into high, medium or low consumption groups. 28 percent were classified as high users, 50 percent were medium and 22 percent were considered light users of alcohol.

It is interesting to observe that 34 percent of the males were classified as high consumers of alcohol, while only 15 percent of females were in this category. This situation supports the findings reported in the analytical section of this Chapter, Table 11, that males are significantly higher consumers of alcohol than females.

It was determined, using the Iowa Scale of Preoccupation with Alcohol Scale, that 51 percent of the 93 high consumers of alcohol were preoccupied with alcohol. This represents 14 percent of the total students used in this study. As was expected, no medium or light users of alcohol were preoccupied with alcohol.

In relation to grades, only 17 percent of the high users of alcohol had an average of over 80 percent, compared

to 41 percent of medium consumers and 28 percent of light consumers of alcohol. These findings seem to indicate that excessive consumption of alcohol may hinder a student from reaching his full academic potential.

It was interesting to note that 30 percent of students who came from farms were high consumers, while only 20 percent of students who had grown up in a large urban centre were high alcohol consumers.

Sixty-six students, or 20 percent of the total sample stated that excessive amounts of alcohol were not harmful to the body, and 6 percent stated that they did not know whether alcohol was harmful or not. These results indicate that almost a quarter of the total sample are either misinformed or not informed about the effect of alcohol on the human body.

CHAPTER V

SUMMARY AND CONCLUSIONS

The main purpose of the thesis was to examine the student population at the Northern Alberta Institute of Technology to determine the relationship between personality traits measured by the Taylor Johnson Temperament Analysis and the level of alcohol usage, which was determined by the Quantity Frequency Index. In addition, the relationship of the students' demographic and social characteristics with their level of alcohol consumption was studied.

Table 24 summarizes the significant findings recorded in Chapter IV relating to personality and level of alcohol consumption, while Table 25, which appears in the concluding section of this chapter, depicts the significant demographic and social findings of this study.

TABLE 24

SIGNIFICANT PERSONALITY TRAITS OF LOW, MEDIUM AND HIGH ALCOHOL USERS AT N.A.I.T.

Level of Alcohol Consumption		
Low	Medium	High
Tolerant		Hostile
Self disciplined		Impulsive
	Expressive-Responsive	
	Active-Social	
Not preoccupied with Alcohol	Not Preoccupied with Alcohol	Preoccupied with Alcohol

The table results indicate, as was hypothesized, that high consumers of alcohol have significantly high levels of hostility and impulsiveness in their personalities. Earlier in this study, it was stated that each T.J.T.A. trait had an opposite at the other end of a continuum scale. Therefore, as revealed in Table 24, low consumers of alcohol have significantly high levels of tolerance and self discipline in their personalities.

Two hypotheses were not supported by the findings of the study. The first was that high consumers of alcohol would have significantly higher levels of dominance in their personalities than medium and low consumers of alcohol. It was also assumed that there would be a significantly higher level of extroversion in the personalities of the high consumers than the medium and low consumers of alcohol.

The level of extroversion exhibited in students' personalities was measured by the active-social and expressive-responsive T.J.T.A. traits. As the table of results reveals, medium consumers of alcohol and not the high consumers, as had been hypothesized, had significantly higher levels of T.J.T.A. extroversion traits as compared to the low users.

A possible explanation for the above unpredicted result is that it is quite feasible that the medium users, which included approximately 50 percent of the student sample, may be representative of the average "social drinker." This

type of individual primarily consumes alcohol as a means of becoming more socially-active and expressive with other people. The study showed that the medium consumer was not preoccupied with alcohol and therefore would probably curtail alcohol intake if social interaction were not imminent.

It is difficult to accurately define a social drinker. However, if they are represented by the medium category; then it is quite conceivable to expect the medium users to exhibit significantly high levels of the active-social and expressive-responsive traits in their personalities.

Another possible explanation as to why the hypotheses relating to dominance and extroversion were not supported by the findings of this study was that this was probably one of the first studies to utilize the T.J.T.A. psychological test to predict significant personality trait differences between the level of alcohol consumers. It should be noted that the hypotheses of this study were formulated on the basis of findings from alcohol studies which primarily utilized M.M.P.I. and E.P.P.S. personality tests. The different results, therefore, could be to some extent artifacts of the different instruments.

Taylor and Morrison (1968), suggested that the T.J.T.A. and the M.M.P.I. measure different personality constructs. They state that:

> The T.J.T.A. was designed for more usual counselling such as student and vocational guidance, premarital, pastoral and individual counselling. (p. 7)

In comparing the two tests, they commented that, unlike the T.J.T.A., the M.M.P.I. was developed to measure abnormalities in personalities.

The E.P.P.S. and the T.J.T.A. also tend to measure different personality constructs. Cronback (1960, p. 542) comments that there was a reduced correlation between the traits of both of these tests, because the E.P.P.S. utilizes a forced choice format for answering questions, while the T.J.T.A. uses a free choice format.

It could therefore be perceived that the hypotheses in this study relating to dominance and extroversion were not supported because, as has been revealed by the above writers, the T.J.T.A. measures different personality constructs than the M.M.P.I. and E.P.P.S.

The Iowa Scale of Preoccupation with Alcohol was used to determine whether the low, medium, or high alcohol groups were preoccupied with alcohol. As revealed in Table 24, the high consumers of alcohol were significantly more preoccupied with alcohol than the medium and low users. The descriptive statistics section of Chapter IV showed that 14 percent of the students used in this study were classified as being preoccupied; that is, they exhibited some of the early symptoms of alcoholism.

It should be realized that some of the demographic and social factors surveyed in this study had a considerable

range in group size. These could be open to re-inspection in the future. In Table 25, the medium alcohol consumption group has been deleted as there were no significant demographic or social factors applicable to this category.

TABLE 25

SIGNIFICANT DEMOGRAPHIC AND SOCIAL CHARACTERISTICS OF LOW AND HIGH ALCOHOL USERS AT N.A.I.T.

Level of Alcohol Consumption	
Low	High
Female	Male
Urban	Rural
Mother Consumed Low Amounts of Alcohol	Mother Consumed High Amounts of Alcohol
Perceived Large Amounts of Alcohol as a Threat to Health	Perceived Large Amounts of Alcohol as a Threat to Health
Oriental Ethnic Background	French Ethnic Background
Age of First Drink 17 - 18 Years	Age of First Drink 13 - 14 Years

The above table shows that the male students were significantly higher consumers of alcohol than the females. This finding supports the literature reported in Chapter II.

It is interesting to observe from Table 25 that the higher consumers of alcohol tended to come from a rural background. The interesting question arising from this finding for future consideration is whether the rural students were heavier users before they came to N.A.I.T., or if the new urban environment and moving from the family influence encouraged them to consume larger amounts of alcohol.

Table 25 also indicates that students who perceived their mothers as consuming excessive amounts of alcohol were significantly higher users of alcohol than those students who perceived their mothers as low consumers. It was surprising that the level of consumption of the fathers as perceived by the students apparently had no significant effect on the students' drinking levels. This is contrary to what Forslund and Gustafson (1970, p. 872) reported. They found that a significantly higher proportion of males and females drink larger quantities of alcohol when their parents consume large quantities of alcohol .

The study revealed that students who did not consider excessive amounts of alcohol harmful to health consumed significantly larger quantities of alcohol than those students who indicated that large amounts are detrimental to health.

Relating this lack of alcohol knowledge in descriptive terms, 20 percent of the sample in this study considered large amounts of alcohol not detrimental to the human body, while 6 percent reported that they did not know whether

large amounts were a health hazard.

It can be seen that 26 percent of N.A.I.T. students are either ill-informed or uninformed about the effects of large amounts of alcohol on the body. Therefore, an alcohol education program would be beneficial to these students. An alcohol education program would also benefit the total N.A.I.T. population, as it was reported in Chapter IV that 94 percent of N.A.I.T. students in this study consumed alcohol.

Table 25 also indicates that the highest alcohol consumers have a French ethnic background. This tends to support the literature reported in Chapter II, which indicates that alcohol consumption is generally higher in those ethnic groups such as the French and Italian, where alcohol consumption, particularly of wine, is considered to be a normal part of the daily routine for the entire family.

The final trait listed in Table 25 concerns the age at which the students commenced drinking. It reveals that high consumers of alcohol commenced drinking between the ages of thirteen and fourteen years of age, while low consumers started using alcohol between seventeen and eighteen years of age.

On further examination of the results, it was found that 80 percent of those who commenced drinking between the ages of eight and fourteen were male, while 70 percent of

those students who had their first experience with alcohol between sixteen and eighteen years were female. This may partially explain why males in this sample are heavier consumers.

It should be again noted that the study was limited to the N.A.I.T. student body, and therefore the findings should not be generalized to any other populations.

RECOMMENDATIONS FOR FURTHER RESEARCH

In order to further knowledge in the area of alcohol usage and accompanying behaviours, the following topics are suggested for future research:

(1) Repeat this alcohol study using a sample from the general population and compare the results.

(2) Study the relationship of personality traits, as determined by the T.J.T.A., to the level of consumption of illicit drug use at N.A.I.T. A comparison of results could be made with this alcohol study.

(3) Determine the changes in alcohol consumption patterns of students who come from rural communities to an urban centre to complete their tertiary education.

(4) Study the effect on alcohol consumption of the recent re-introduction of alcohol advertising in Alberta.

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APPENDICES

APPENDIX A

PLEASE READ FIRST

NAIT STUDENT STUDY

Please be assured that all information you give us will be treated confidentially. Only identify yourself on both answer sheets if you want your results.

Answer the Taylor Johnson Test, Iowa Test, the Quantity Frequency Index, and the Student Questionnaire as quickly as possible. A QUICK RESPONSE IS OFTEN A TRUE RESPONSE.

Please do not mark or remove the questionnaire or test booklet from the Auditorium. Use the pencil provided to mark the answer sheet.

We hope you will be ABSOLUTELY HONEST when answering the questionnaire and the test. ONLY HONEST RESULTS WILL HELP. The information provided will be used to determine whether additional student services should be offered at NAIT.

THANK YOU FOR PARTICIPATING.

QUANTITY FREQUENCY INDEX

1. FREQUENCY: CHECK ONE ONLY - PLACE NUMBER ON ANSWER SHEET

How often in the past year did you have one or more drinks?

1. Never
2. Once a year
3. Once a month
4. Twice a month
5. Once a week
6. More than once a week
7. Daily

2. QUANTITY - Read carefully

Although you may drink all the beverages listed, DO NOT CHECK OFF each one. CHOOSE ONLY the beverage that you MOST COMMONLY consume at a sitting -- that is, from the time you start until you finish.

SELECT ONE ALCOHOLIC BEVERAGE AND ONE RESPONSE ONLY AND PLACE THE NUMBER ON THE ANSWER SHEET.

Glasses of Beer

.01 1 - 3 glasses of beer
.02 4 - 7 glasses of beer
.03 8 or more glasses of beer

Wine

.04 1 - 3 glasses of wine
.05 4 - 5 glasses of wine
.06 6 or more glasses of wine

Liquor

.07 1 - 2 drinks of liquor (highballs)
.08 3 - 4 drinks of liquor (highballs)
.09 5 or more drinks of liquor (highballs)

Bottles of Beer

.10 1 - 2 bottles of beer
.11 3 - 5 bottles of beer
.12 6 or more bottles of beer

APPENDIX B

STUDENT QUESTIONNAIRE

MAKE ONE RESPONSE TO EACH OF THE FOLLOWING QUESTIONS. PLACE THE NUMBER IN THE BOX ON THE ANSWER SHEET.

1. In which GROUP is your technology located? (Choose a number from the list below.)

1. Group A

Biological Sciences
Dental Assisting
Dental Laboratory
Dental Mechanic
Dietary Technology
Medical Dicta-Typist
Medical Laboratory
Medical Record Librarian
Medical X-Ray
Respiratory
Veterinary & Animal Sciences

2. Group C

Accounting & Finance
Administrative Management
Banking
Computer Systems
Court Reporting
Financial Management
Marketing Management
Office Machine
Secretarial
Teller Training & General Business

3. Group B

Architectural
Commercial Baking
Commercial Cooking
Commercial Signwriting
Engineering Design & Drafting
Food
Food & Beverage
Interior Design
Ladies Hairstyling
Men's Hairstyling
Mixology
Photographic
Pre Technology A
Pre Technology B
Retail Meat Cutting
Radio & Television Arts
Tailoring

4. Group D

Air Conditioning & Refrigeration
Building Construction
Chemical
Civil Engineering
Coal Resources
Electrical Engineering
Electronics Engineering
Electronics Technician
Forestry
Gas
Hydrocarbon Engineering
Instrumentation Engineering
Industrial Heavy Equipment
Materials Engineering
Mechanical Industrial Engineering
Millwork & Carpentry
Mineral Resources
Petroleum Resources
Plastics Engineering
Power Engineering
Surveying
Telecommunications

2. What is your sex? If male place a 1 in the box.
If female place a 2 in the box.

3. What age group are you in?

1. Under 17
2. Between 17-19
3. Between 20-22
4. Between 23-25
5. Between 26-30
6. Over 30

4. I was brought up primarily as a:

1. Baptist
2. Orthodox
3. Lutheran
4. United
5. Anglican
6. Atheist or Agnostic
7. Catholic
8. Jew
9. Other

5. Is your ethnic background primarily:

1. English or Scottish
2. German
3. Ukranian
4. Oriental
5. French
6. Third Generation Canadian
7. American
8. Irish
9. Other

6. Did you grow up primarily in a location with a population of:

1. Over 100,000
2. Between 10,000 and 99,999
3. Town under 10,000
4. Farm

7. What were your grades in the first quarter of 1974-75 academic year?

1. 90% and over
2. 80% - 89%
3. 70% - 79%
4. 60% - 69%
5. 50% - 59%
6. Less than 50%

8. Who introduced you to alcohol?

1. Parents
2. Friends
3. Myself
4. Other

9. How old were you when you had your first drink?

1. Under eight
2. 8-10
3. 11-12
4. 13-14
5. 15-16
6. 17-18
7. 19-20
8. 21-24
9. 25 and over

10. In your opinion, how much alcohol does your mother consume?

1. Small amounts
2. Medium amounts
3. Large amounts
4. No amounts

11. In your opinion, is consumption of excessive amounts of alcohol harmful to the body?

1. Yes
2. No
3. Don't know

12. In your opinion, how much alcohol does your father consume?

1. Small amounts
2. Medium amounts
3. Large amounts
4. No amounts

APPENDIX C

NORTHERN ALBERTA
INSTITUTE OF TECHNOLOGY

Department of
Advanced Education

403/477-4111

11762 - 106 Street
Edmonton, Alberta Canada T5G 2R1

Dear

This is to inform you that you have been one of a number of N.A.I.T. students RANDOMLY selected by the computer to participate in a very interesting study aimed at determining N.A.I.T. student habits, attitudes and temperament traits.

We need to know your honest reactions as a student in order to identify the areas of student concern so that additional services can be developed.

You need not fear giving us information because great care has been given in setting up the study to conceal your identity.

However, if you would like to know your results; then you can identify yourself on the test and obtain them from Mr. Bob Buchan through the Student Services Office.

YOUR TESTING TIME IS _____ AT THE N.A.I.T. AUDITORIUM

ON WEDNESDAY _____, 1975.

The one hour of your time involves the filling out of a questionnaire which will be greatly appreciated by N.A.I.T.

If you have any further inquiries, contact Study Co-ordinator, Mr. Bob Buchan, through the Student Services Office.

Thank you for your co-operation.

_____
Mr. G. W. Carter,
President, N.A.I.T.

_____
Mr. R. K. Buchan,
Study Co-ordinator

APPENDIX D

ANSWER SHEET FOR NAIT STUDY

NOTE: PLEASE WRITE ONLY ONE DIGIT IN EACH BOX.

Only IDENTIFY yourself on both answer sheets if you want your results

NAME: _____ TECHNOLOGY _____

Student Questionnaire

Q 1 ☐
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐
8 ☐
9 ☐
10 ☐
11 ☐
12 ☐

QUANTITY FREQUENCY INDEX

Q 1 ☐
2 ☐☐

Iowa Test

Q A1 ☐
A2 ☐
A3 ☐
B1 ☐
B2 ☐
B3 ☐
C1 ☐
C2 ☐
C3 ☐
D1 ☐
D2 ☐
D3 ☐

FOR OFFICE USE ONLY

TJTA SCORES

A ☐☐ B ☐☐ C ☐☐ D ☐☐

E ☐☐ F ☐☐ G ☐☐ H ☐☐ I ☐☐

Iowa Rating ☐ Quantity Frequency Rating ☐